

Migration of Black Drongo *Dicrurus macrocercus* in southern Thailand in autumn 2003

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The Black Drongo *Dicrurus macrocercus* is a medium-sized passerine of temperate and tropical Asia. It breeds in south-east Iran, Afghanistan, India, south-east Tibet, and from northern China discontinuously south through south-west Thailand, to Bali and Java. Northern populations migrate, wintering at lower altitudes and latitudes, reaching as far south as central India in the west, and Malaysia and Sumatra in the east, where they occur in tropical savanna, grassland and agricultural areas (Jeyarajasingham and Pearson 1999).

Little has been published about Black Drongo migration. Historically, the species was considered an 'extremely abundant' migrant in September at Beidaihe, China, occurring in 'huge noisy parties' (La Touche 1920). In an autumn migration survey of the same area from 1986–1990, Williams (2000) counted a maximum of 452 in 1986, but only 196 in 1990. Melville and Fletcher (1982) counted 1,444 flying west in less than two hours of observation on 14 October 1980 near Bangkok, Thailand. Numbers migrating through, and wintering in, Thailand appear to have declined in recent years (P. Round verbally 2003, D. Wells *in litt.* 2004).

As part of a study of raptor migration through southern Thailand in autumn 2003 (DeCandido *et al.* 2004), we also counted the number of migrant Black Drongos passing the watch site.

99°13.26'E) was in a freshwater marsh at Ban U-Tapao, Tha Yang subdistrict, 4.6 km east-north-east of Chumphon, and approximately 2 km north-east of the coastal highway. The vegetation comprises primarily sedges *Carex* spp., rushes *Juncus* spp. and cat-tails *Typha* spp. with lone, scattered trees. In clear weather, it is possible to see 10 km to the north-east, 3 km to the east and west, and about 1 km to the south. The location of our watch site was approximately 435 km to the south-south-west of the one used by Melville and Fletcher (1982).

Migrating drongos were counted using 10x binoculars by RDC, assisted at times by CN and DA. Count protocols followed those described in Bildstein and Zalles (1995) for raptors. We scanned primarily north for approaching migrants. A bird was counted if it passed across an imaginary east-west line at the watch site. Observations typically began at 07h00 local time and usually ended at or before 17h00. Weather conditions (wind speed, barometric pressure, temperature, humidity) were measured hourly throughout the day with a hand-held 'weather station', the Kestrel 4000 (Nielsen-Kellerman Corporation, USA). Wind direction was assessed with a compass. We counted migrants during late September to early November because this period corresponded to the peak of the diurnal bird migration observed in previous years by CN.

METHODS

Chumphon (10°28'N 99°13'E; sea level) is a town on the coastal plain of southern Thailand. The north-south Bilauktaung range 35 km to the west funnels many diurnal bird migrants through this 30-km wide coastal plain adjacent to the Gulf of Thailand (Wells 1999, Zalles and Bildstein 2000). The study site (10°28.40'N

RESULTS AND DISCUSSION

During 378 hours of observation between 27 September and 9 November 2003, we counted 11,290 migrating Black Drongos (29.9 birds/hour). Drongos migrated throughout the day, primarily between 07h45 and 17h45 (Fig. 1). Between dawn and c.07h30, Black Drongos made short flights from overnight roosts to foraging areas. Most birds began migrating soon after,

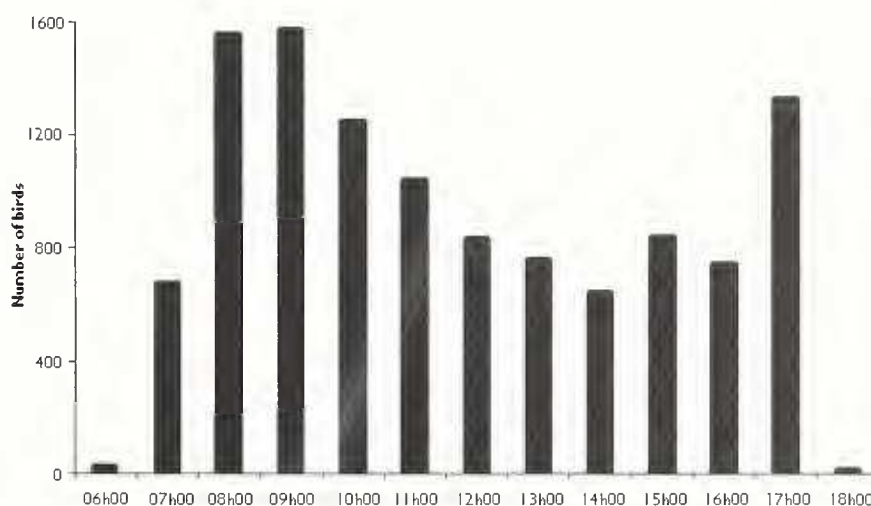


Figure 1. Daily pattern of Black Drongo migration (totals seen per hour) at Chumphon, Thailand in autumn 2003.

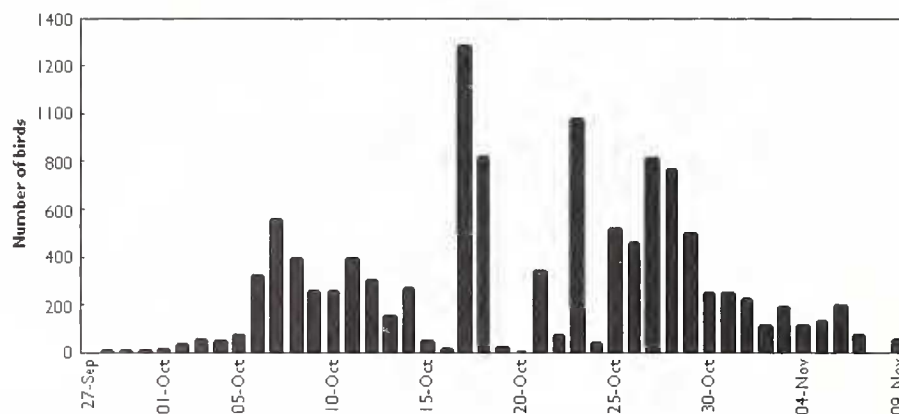


Figure 2. Seasonal pattern of Black Drongo migration (totals seen per day) at Chumphon, Thailand in autumn 2003.

along with bee-eaters *Merops* spp. and swallows Hirundiniae, but before the onset of most raptor migration. The daily peak of migration was at 08h00–10h00, when 28% (3,129) of all individuals were counted (37.2 birds/hour). Numbers fell by early afternoon, but increased again in the late afternoon. There was often a large movement at 17h00–18h00, presumably of birds heading to roost. We rarely saw drongos migrating after 18h00. In contrast, Crow-billed Drongo *Dicrurus annectans* was frequently mist-netted at night in autumn 1965–1973 at Fraser's Hill, Malaysia (Medway and Wells 1976, McClure 1998, D. Wells *in litt.* 2004).

Migration peaked in late October, with 2,089 birds (97.1 birds/hour) on 17–18 October following two days of heavy rains throughout much of Thailand, and 2,766 birds (55.3 birds/hour) on 26–30 October (Fig. 2). By early November, there were fewer migrating drongos, and we assumed that many of those we saw had settled on their winter territories. Further north at Beidaihe, Williams (2000) estimated that drongo migration peaked on 6–17 September. Our highest single hourly count (618) on 17 October was similar to the 825 birds/hour seen in the late afternoon of 14 October 1980 by Melville and Fletcher (1982).

There was no significant difference between the number of Black Drongos counted when winds were from the north to north-west compared to the east or south ($\chi^2=0.13$, $P<0.05$). The vast majority of migrant drongos passed the watch site at a height of <35 m, and usually <8 m. Early in the season, drongos occurred as singles, but formed loose flocks from 5 October onwards. Often, 5–20 birds would pass the watch site, sometimes across a 30 m front. The species did not appear to be an obligate flocking species (*sensu* Kerlinger 1989) like, for example, the Blue-tailed Bee-eater *Merops philippinus*.

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